CLAIMS

1. Encryption/Decryption apparatus comprising:

means for retrieving information to be encoded/decoded, said information defining an array D1 of first elements,

means for combining of the first elements of D1 by concatenation of at least one to another of said first elements of D1, wherein said concatenation results in formation second elements of an array D2, and wherein the number of second elements is less than the number of first elements, but where at least one of the second elements is larger than at least one of the first elements,

means for converting at least one of the second elements of D2 into digits D3, base N1,

means for modifying the digits D3, and

means for reconverting the modified digits D3 back, using number base N1, into an element of D2

means for converting and decatenating said modified second elements of array D2 back into the first elements of D1, and

an array of R elements, said R elements arranged to provide information for directing and controlling one or more above elements of means for: combining, converting, modifying, converting the modified digits, and converting and deconcatenating.

2. The apparatus as defined in claim 1 further comprising means for permuting the order of said first and second elements being concatenated, rotated, modified, shuffled, converted and decatenated.

3. The apparatus as defined in claim 1 further comprising an array S wherein said array S is arranged to provide information, in addition to array R, for directing and controlling one or more elements of means for: combining, converting, modifying, converting the modified digits, and converting and deconcatenating.

4. Apparatus as defined in claim 1 wherein said means for combining comprises: means for arithmetic and logic combining selected from the group consisting of means for adding, subtracting, exclusive-oring, rotating, shuffling of sequence, or using a modified exclusive-or base N function.

5. Apparatus as defined in claim 4 wherein said means for arithmetic and logic

combining comprises means for converting into another number base.

6. Apparatus as defined in claim 1 wherein the number of first elements, D1, concatenated to form each element of array D2 is varied in number.

7. A method for encryption/decrypting comprising the steps of:

retrieving information to be encoded/decoded, said information defining an array D1 of first elements,

combining of the first elements of D1 by concatenation of at least one to another of said first elements of D1, wherein said concatenation results in formation second elements of an array D2, and wherein the number of second elements is less than the number of first elements, but where at least one of the second elements is larger than at least one of the first elements,

converting at least one of the second elements of D2 into digits D3, base N1,

modifying the digits D3, and

reconverting the modified digits D3 back, using number base N1, into an element of D2

converting and decatenating said modified second elements of array D2 back into the first elements of D1, and

arranging an array of R elements to provide information for directing and controlling one or more of above steps of: combining, converting, modifying, converting the modified digits, and converting and deconcatenating.

8. The method as defined in claim 7 further comprising the step of permuting the order of said first and second elements being concatenated, shuffled, rotated, modified, converted and decatenated.

9. The method as defined in claim 7 further comprising the step of arranging an array S containing information, in addition to array R, for directing and controlling one or more elements of above steps of: combining, converting, and modifying.

10. The method as defined in claim 7 wherein said step of combining comprises the steps of::

arithmetic and logic combining, wherein the arithmetic and logic steps are selected from the group consisting of the steps of adding, subtracting, exclusive-oring, rotating, shuffling, sequencing or using a modified exclusive-or base N function..

11. Method as defined in claim 10 wherein said arithmetic and logic combining comprises converting into another number base.

12. Method as defined in claim 7 wherein the number of first elements, D1, concatenated to form each element of array D2 is varied in number.

13. Encryption/Decryption apparatus comprising:

means for retrieving information to be encoded/decoded, said information defining an array D1 of first elements expressed in a number base M,

first means for converting each of said first elements into an array D3 of third elements d3 expressed in a number base N1, wherein N1 is greater than two,

means for retrieving fourth elements d4 of an array, D4, wherein said fourth elements are expressed in said number base N2,

means for combining at least one of the elements d3 of D3 with at least one of the elements d4 of array D4, according to the relationship d3 (XOR+) d4, thereby forming fifth elements of an array D5, and

second means for converting the elements of D5, base N1, into an array of such elements, D6, expressed in a number base M wherein the array D6 is the ciphertext of D1 when encrypting and wherein array D6 is the plaintext when decrypting.

14. Apparatus as defined in claim 13 wherein said means for combining is governed by the relationship, d3(XOR-)d4, thereby forming fifth elements of an array D5.

15. Apparatus as defined in claim 13 wherein the number of first elements, D1, concatenated to form each element of array D2, is varied in number.

16. A method for encrytion/decryption comprising the steps of:

retrieving information to be encoded/decoded, said information definign an array D1 of first elements expressed in a number base M,

converting each of said first elements into an array D3 of third elements d3 expressed in a number base N1, wherein N1 is greater than two,

retrieving fourth elements d4 of an array, D4, wherein said fourth elements are

expressed in said number base N2,

combining at least one of the elements d3 of D3 with at least one of the elements d4 of array D4, according to the relationship d3 (XOR+) d4, thereby forming fifth elements of an array D5, and

converting the elements of D5, base n1, into an array of such elements, D6, expressed in a number base M wherein the array D6 is the ciphertext of D1 when encrypting and wherein array D6 is the plaintext when decrypting.

17. The method as defined in claim 16 wherein the step of combining at least one of the elements d3 of D3 with at least one of the elements d4 of D4, according to the relationship d3(XOR-)d4, thereby forming fifth elements of an array D5.

18. The method as defined in claim 16 wherein the number of first elements , D1, concatenated to form each element of array D2, is varied in number.